QWEST FOUNDATION FOR EDUCATION
COMPETITIVE SUB-GRANT PROPOSAL ASSURANCE SHEET

Project Title: Mathematics Transformation Amount of Request: $ 3062

Name of Certificated Teacher (or "lead teacher" if more than one): Jen Cleave

Name of School currently teaching at: Ponderosa Elementary School

District Name: Post Falls School District #2 District Number: 273

Total number of teachers involved (if more than one): 2

Approximate number of students impacted: 110 each year Grade level(s) impacted: 5th

Content area(s) impacted: math

I certify that if I receive a Qwest Foundation for education Grant –

- **I agree to create a 5-minute video highlighting my project for the purposes of sharing best practices with other Idaho K-12 teachers.**
- **I agree to do one presentation on my project to other Idaho K-12 teachers before October 31, 2012.**
- **I agree to submit an electronic report to the Idaho State Department of Education before October 31, 2012.**

SUPERINTENDENT NAME (PRINT) Jerry Keane	E-MAIL jkeane@sd273.com	TELEPHONE 208-773-1658
SIGNATURE		
PRINCIPAL NAME (PRINT) Kathy Baker	E-MAIL Kbaker@sd273.com	TELEPHONE 208-773-1508
SIGNATURE		
TEACHER OR LEAD TEACHER NAME (PRINT) Jennifer Cleave	E-MAIL jcleave@sd273.com	TELEPHONE 208-773-1508
SIGNATURE		
TECHNOLOGY DIRECTOR (PRINT) John Pilmore	E-MAIL jpilmore@sd273.com	TELEPHONE 208-661-3520
SIGNATURE		

Submit one digital copy of your proposal (PDF format) by Thursday, November 10, 2011 (by 5 pm MST) via e-mail to:

Alex Macdonald
amacdonald@sde.idaho.gov
208.332.6955

Proposals submitted after that date and time will not be considered.

***Only one PDF file per teacher applicant will be accepted (this includes the assurance sheet).**
Faxes will not be accepted.

Qwest Foundation for Education
Sub-Grant Proposal

Abstract
Mathematics Transformation

trans·for·ma·tion – A seemingly miraculous change.

Create a picture in your mind of your fifth grade math class. What did it look like? What did you feel like after you left? For many of us, our memories of elementary school math leave us with the recollection of a large textbook that our teacher aimed to cover by the end of the year. It might also make us think of sitting in our seat for an hour listening to the monotone voice of our teacher drone on about the properties of addition, compensation, or long division. Many of us left math class utterly thrilled to move on to more exciting classes or worried about the homework that we would be left to complete on our own that evening. After pondering these negative experiences stemming in math class, I began to ask others what memories they have of elementary math. Sadly, most of my peers and colleagues had similar experiences that made learning math almost unbearable as they grew.

After changing grade levels, I was recently asked to specialize in the area of mathematics. Being a hands-on teacher, the thought of teaching math out of a textbook daunted me. Not wanting to perpetuate the negative thoughts of math that plaque most, I knew that I needed to create a mathematical transformation in my students. At the beginning of the year, the fifth grade students were surveyed to determine their underlying beliefs about math. The results of the survey were not surprising. Many of the students hated math, their parents openly shared their struggles and personal dislike of math, and math was by far their least favorite subject of the day. Immediately a feeling of urgency came upon me that I needed to change mathematics instruction for my students, or I could miss the opportunity to change their mind.

An educator's main desire is for students to gain a rich learning experience. This means using tools that engage them, motivate them to learn, and modes that allow them to challenge their creativity. During the math instruction this year, I want my students to gain a love of mathematics in a discussion rich environment, and to discover information through active, problem-based learning activities using technology and manipulative devices. In order to provide the best possible learning environment for my students I would like to introduce my math students to the SMART board technology. Along with the other technology and manipulatives in the classroom, I believe the SMART board will create a mathematics transformation for my students. I would like the technology to engage the students and maintain their attention as we seek to educate far more in depth student learning objectives than ever before. My hope is that the technology will inspire the gifted to continue to make growth and inspire our lower level Tier 2 students to embrace mathematics. The SMART board technology will not only assist fifth grade students this year, but will continue to help students interact with math in years to come. Ponderosa Elementary School in Post Falls is a Title 1 school consisting of 560 students. Of these 560 students 61% qualify for free/reduced meals.

Overall the Mathematics Transformation project is designed to engage and transform fifth grade students in math and technology using an innovative and inquiry-based approach. It is my hope in using this technology that I will develop a positive outlook in the students about mathematics instruction. The goal is also to prepare students to become creative problem solvers who are interested in pursuing further growth in mathematics.

jcleave_PonderosaElementary_PostFalls

Current Innovation

At Ponderosa Elementary School, our staff is continually working to provide the best teaching practices and opportunities for students. One of our goals is to improve our use of technology in the classroom. We have started accumulating hardware and knowledge and hope that the Qwest grant will enable us to make more progress towards this goal. We were recently awarded several iRespond Student Response Systems which have enabled us to gauge student learning through the use of technology. These response systems allow us to measure student understanding almost instantaneously. After posing a learning objective question in a word document or Power Point format, students can respond to the question with the use of an individual hand held remote. After students respond, the system allows the class to view and interact with student response data. It also allows the teacher (on a personal computer) to know immediately which students have not yet met the learning target. I use the student response systems not only to quickly grasp my students' present levels of performance, but also to keep them engaged with a device that they are excited to use. The system has also cut back on the use of paper in the classroom and well as teacher time devoted to grading. This teacher time has been used in a practice that is much more beneficial to teachers, creating innovative and exciting lessons.

I believe that incorporating SMART board technology will allow us to further educate our students by giving them another means to interact and manipulate instruction. I am excited to use it in the math classroom because technology such as the SMART board helps students with different learning styles learn more effectively. Visual learners can see their work projected and gain immediate feedback on their work. Auditory learners can use different software to interact with the board. Tactile learners can use different colored pens to write on the board and highlight important ideas. The board will allow the students to solve problems in many different ways and project them on the screen for all students to see. The whiteboard takes a limited computer classroom and maximizes the use of one computer for many students at a time. It also enables students to make changes to their peers' responses without having to create a product that is illegible. SMART boards make it possible to display and interact with learning games that would once require a computer for each student. The electronic whiteboard is a colorful tool. Research indicates that students respond to displays where color is employed.

The classrooms at Ponderosa are all equipped with document cameras and LCD data projectors that teachers use daily as another mode of teaching content to students. Although these are wonderful and necessary pieces of technology in the classroom, they are limited in their interactive nature for students. The SMART board is compatible with all the technology currently used within the classroom.

Our district recently also adopted the Math Connects program for mathematics instruction created by McGraw Hill. This program provides a rich opportunity for keeping my students on both ends of the spectrum engaged and challenged. Although the program does not have SMART board technology lessons already created, I was thrilled to find some resources dedicated to teaching teachers how they can implement the technology along with the program. Our school Gifted and Talented teacher currently uses the SMART board technology and uses the Math Tools CD made specifically for SMART board mathematics instruction.

jcleave_PonderosaElementary_PostFalls

Project Narrative

One of the challenges that an educator is faced with daily is meeting the needs of the individual learner. We are constantly trying to meet the needs of the students that need remediation as well as meet the needs of the student that needs to be challenged. The learning gap between students in math between these two groups of students is quite large.

Within the Post Falls School District, and specifically at Ponderosa Elementary, we are dedicated to closing this learning gap. Our school services students that come from the poverty level and who are often consumed with adult issues such as hunger and homelessness. These kids come to school with many of their basic needs not met and so have a very difficult time concentrating on school. Our school is also home to kids that come from very affluent neighborhoods. These kids are involved in many extra curricular activities outside of school and are blessed with many lifelong experiences that those from the poverty group do not have. We have found that these two groups of students are separated by a difference in capabilities that are obvious.

We have also thrown in to the mix kids that come from two parent working families and kids with stay at home parents. In addition, there seems to be a learning gap that is characterized by parents that value education verses parents that don't. We have also discussed research related to screen time within the home and how the screen time affects learning in the classroom. The kids that come from disadvantaged backgrounds in any shape or form noticeably lack attention, study skills, background knowledge, and typically have not been successful previously in math.

In order to meet the learning needs of all students, the Post Falls District is supportive in the use of our professional judgement as teachers to discover and implement research-based strategies that we need to in order to best address the learning goals for our students. They believe that we hold the key to help students to become successful. We need to challenge and extend our higher students as well as engage and motivate our low level students. Technology is the tools that will meet these needs. The Mathematics Transformation project will be spearheaded by Jennifer Cleave and Rachel Reed, both fifth grade math teachers. They will be the teachers responsible for implementing the daily use of the SMARTboard technology within the mathematics classrooms.

In order to improve motivation to learn, it is important to present lessons and assign learning activities that are fun and interesting. This in turn will increase motivation in students. The SMART Board helps to present lessons in a fun, interesting and creative way. Increased motivation is a key benefit from interactive whiteboards. Also, the ability to present and talk about students' work helps to raise self-esteem and keep students on task. William D. Beeland, Jr. completed a research study on student engagement and interactive whiteboards. His research clearly indicated that interactive whiteboards increase student engagement during the learning process.

The Mathematics Transformation project will be able to affect students in years to come. Once the initial cost of the white boards is behind us, we will be able to present this technology to kids year after year. The web is inundated with math ideas for the SMART board technology. Many curriculums purchased by districts offer the SMART board resources included with their programs. I believe including as many forms of technology in the classroom as possible will allow us to appeal to the students who come from this technology age. Without it, I believe we are losing a valuable tool as a means to instruct them.

I am so excited to watch the students in each of my math groups become energized with this tool in my classroom. I truly believe it will initiate a math transformation!

Project Scope and Sequence

The following implementation plan will be followed to ensure that the Mathematics Transformation project begins in a timely manner. Upon receipt of the Mathematics Transformation Qwest grant award, the lead teacher will ask the school secretary to submit a purchase order for the two Walk and Talk SMART boards and four LCD projector bulbs. When the ordered items arrive at the school, the technology staff will register each device, install all necessary software applications and mount the technology to the wall. Technology will train the two fifth grade math teachers on the use of the SMART board so that the teachers may customize the device further to specifically meet the needs of the students. Within two weeks of receiving the whiteboards, the two math teachers will search for programs/resources to assist with making the SMART board technology come alive for students. The teachers will use online tools that allow them to search for lessons that are already created using SMART board technology and will review the Math Tools CD made specifically for SMART boards already at use in the Gifted and Talented Room of the school. .

After the two week time period of learning and manipulating the whiteboards and the resources available, the device would be introduced to the children through a familiar routine already built into the math daily schedule, the "problem of the day". The classroom teacher will continue to experiment daily with the whiteboard, allowing students to interact on a deeper level as they progress throughout the year.

In April, 2012, staff from our building will come together for a short training featuring the many different ways to use a SMART board in a mathematics class and to learn about the research based methods/effects of using one to help students interact with the math curriculum.

In June, 2012 the lead teacher will create a five to ten minute video of the Mathematics Transformation highlights. Also in that month, the lead teacher and principal will compile and submit a report to the Idaho State Department of Education.

In July, 2012, the principal will present the project video to the Lewis-Clark State College PACE program pre-service teachers.

Budget Narrative

In order to fully implement a mathematical transformation, the fifth grade team would like to purchase two Walk and Talk SMART board Interactive White Boards for the fifth grade math program. These two SMART boards will be placed within two mathematics classrooms for a total of four math classes consisting of a total of 110 students.

The SMART boards we would like to purchase are 4ft by 6ft Walk and Talk white boards. The Walk and Talk technology allows teacher to control the board from anywhere in the classroom using a remote control. The remote control has a built in touch pad and trigger-click technology that will enable the teacher to manipulate the smart board on the web with a hand held mouse. Included with the SMART board is a stylus and an inferred eraser with two spare eraser pads. The white board is shipped with wall mounting brackets. The SMART board is compatible with our current technology.

The use of the SMART board would also increase the amount of time daily the LCD projector is used. Because of the current budgeting constraints, we would like to purchase 4 LCD bulb replacements so we can continue to use the SMART board if the projector bulbs burn out.

If in the event that this program is not fully funded, I will write a PFEA (Post Falls Education Association) grant for the remaining money needed to implement the program in the way it would be most successful.

Budget Spreadsheet

Materials and Supplies	Capital Objects	Quantity	Price Per Unit	Subtotal
	Walk and Talk SMART board	2	1,095	2,190
Projector Replacement Bulbs		4	218	872
			Grand Total	3062